CLAIMS

1. A template pattern for a reference surface of a disk connected with a hard disk drive having at least one head connected with a rotary actuator, comprising:

  at least one servo wedge having a first end at an inner diameter of the disk and a second end at an outer diameter of the disk, each servo wedge including:

   a plurality of pulses extending along a stroke from the first end to the second end;

   a plurality of zig-bursts, each zig-burst forming a variable angle relative to the plurality of pulses; and

   a plurality of zag-bursts, each zag-burst forming a negative chevron angle relative to the plurality of pulses; and

   wherein the variable angle at the second end is a chevron angle and the variable angle at the first end is less than the chevron angle.

2. The template pattern of claim 1, wherein the plurality of pulses trace an arc from the first end to the second end such that the arc follows a motion of the head.

3. The template pattern of claim 1, wherein each pulse can be continuous or discontinuous along the stroke.

4. The template pattern of claim 1, wherein the variable angle increases continuously between the first end and the second end.

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5.   The template pattern of claim 1, wherein the variable angle abruptly changes from less than the chevron angle to the chevron angle.

6.   The template pattern of claim 1, wherein the chevron angle is equivalent to head skew at the first end.

7.   The template pattern of claim 6, wherein the variable angle is constant relative to a radial line extending from the first end to the second end.

8.   A template pattern for a reference surface of a disk connected with a hard disk drive having at least one head connected with a rotary actuator, comprising:

at least one servo wedge having a first end at an inner diameter of the disk and a second end at an outer diameter of the disk, each servo wedge including:

a plurality of pulses extending along a stroke from the first end to the second end;

a plurality of zig-bursts, each zig-burst forming a variable angle relative to the plurality of pulses; and

a plurality of zag-bursts, each zag-burst forming a negative chevron angle relative to the plurality of pulses; and

wherein the variable angle at the first end is zero and the variable angle at the second end is a chevron angle.

9. The template pattern of claim 8, wherein the plurality of pulses trace an arc from the first end to the second end such that the arc follows a motion of the head.

10. The template pattern of claim 8, wherein each pulse can be continuous or discontinuous along the stroke.

11. The template pattern of claim 8, wherein the variable angle increases continuously between the first end and the second end.

12. The template pattern of claim 8, wherein the variable angle abruptly changes from zero to the chevron angle.

13. The template pattern of claim 8, wherein the chevron angle is equivalent to head skew at the first end.

14. The template pattern of claim 13, wherein the variable angle is constant relative to a radial line extending from the first end to the second end.

15. A template pattern, comprising:

at least one servo wedge having a first end and a second end, each servo wedge including:

a plurality of pulses extending along a stroke from the first end to the second end, each pulse being continuous or discontinuous;

a plurality of zig-bursts, each zig-burst forming a varying angle relative to the plurality of pulses; and

a plurality of zag-bursts, each zag-burst forming a negative chevron angle relative to the plurality of pulses;

wherein the varying angle at the first end is zero and the varying angle at the second end is a chevron angle.

16.   The template pattern of claim 15, wherein the plurality of pulses trace an arc from the first end to the second end.

17.   The template pattern of claim 15, wherein the variable angle increases continuously between the first end and the second end.

18.   The template pattern of claim 15, wherein the variable angle abruptly changes from zero to the chevron angle.

19.   The template pattern of claim 15, wherein the chevron angle is equivalent to head skew at the first end.

20.   The template pattern of claim 19, wherein the variable angle is constant relative to a radial line extending from the first end to the second end.

21. A template pattern for a reference surface of a disk connected with a hard disk drive having at least one head connected with a rotary actuator, comprising:

at least one servo wedge having a first end at an inner diameter of the disk and a second end at an outer diameter of the disk, each servo wedge including:

a plurality of pulses extending along a stroke from the first end to the second end;

a plurality of zig-bursts, each zig-burst forming a negative chevron angle relative to the plurality of pulses; and

a plurality of zag-bursts, each zag-burst forming a variable angle relative to the plurality of pulses;

wherein the variable angle at the first end is zero and the variable angle at the second end is a chevron angle.

22. The template pattern of claim 21, wherein the plurality of pulses trace an arc from the first end to the second end such that the arc follows a motion of the head.

23. The template pattern of claim 21, wherein each pulse can be continuous or discontinuous along the stroke.

24. The template pattern of claim 21, wherein the variable angle increases continuously between the first end and the second end.

25.   The template pattern of claim 21, wherein the variable angle abruptly changes from zero to the chevron angle.

26.   The template pattern of claim 21, wherein the chevron angle is equivalent to head skew at the first end.

27.   The template pattern of claim 26, wherein the variable angle is constant relative to a radial line extending from the first end to the second end.

28.   A template pattern , comprising:

at least one servo wedge having a first end and a second end, each servo wedge including:

a plurality of pulses extending along a stroke from the first end to the second end, each pulse being continuous or discontinuous;

a plurality of zig-bursts, each zig-burst forming a negative chevron angle relative to the plurality of pulses; and

a plurality of zag-bursts, each zag-burst forming a varying angle relative to the plurality of pulses;

wherein the varying angle at the first end is zero and the varying angle at the second end is a chevron angle.

29.   The template pattern of claim 28, wherein the plurality of pulses trace an arc from the first end to the second end.

30.   The template pattern of claim 28, wherein the variable angle increases continuously between the first end and the second end.

31.   The template pattern of claim 28, wherein the variable angle abruptly changes from zero to the chevron angle.

32.   The template pattern of claim 29, wherein the chevron angle is equivalent to head skew at the first end.

33.   The template pattern of claim 32, wherein the variable angle is constant relative to a radial line extending from the first end to the second end.

34.   A template pattern for a reference surface of a disk connected with a hard disk drive having at least one head connected with a rotary actuator, comprising:

    at least one servo wedge having a first end and a second endk, each servo wedge including:

        a plurality of pulses extending along a stroke from the first end to the second end;

        a plurality of zig-bursts, each zig-burst forming a variable angle relative to the plurality of pulses; and

        a plurality of zag-bursts, each zag-burst forming a negative chevron angle relative to the plurality of pulses; and

wherein the variable angle at the second end is a chevron angle and the variable angle at the first end is less than the chevron angle.

35. The template pattern of claim 34, wherein the plurality of pulses trace an arc from the first end to the second end such that the arc follows a motion of the head.

36. The template pattern of claim 34, wherein each pulse can be continuous or discontinuous along the stroke.

37. The template pattern of claim 34, wherein the variable angle increases continuously between the first end and the second end.

38. The template pattern of claim 34, wherein the variable angle abruptly changes from less than the chevron angle to the chevron angle.

39. The template pattern of claim 34, wherein the chevron angle is equivalent to head skew at the first end.

40. The template pattern of claim 39, wherein the variable angle is constant relative to a radial line extending from the first end to the second end.

41. A template pattern for a reference surface of a disk connected with a hard disk drive having at least one head connected with a rotary actuator, comprising:

at least one servo wedge having a first end at an inner diameter of the disk and a second end at an outer diameter of the disk, each servo wedge including:

a plurality of pulses extending along a stroke from the first end to the second end;

a plurality of zig-bursts, each zig-burst forming a variable angle relative to the plurality of pulses; and

a plurality of zag-bursts, each zag-burst forming a negative chevron angle relative to the plurality of pulses; and

wherein the variable angle at the first end is zero and the variable angle at the second end is a chevron angle.

42.   The template pattern of claim 41, wherein the plurality of pulses trace an arc from the first end to the second end such that the arc follows a motion of the head.

43.   The template pattern of claim 41, wherein each pulse can be continuous or discontinuous along the stroke.

44.   The template pattern of claim 41, wherein the variable angle increases continuously between the first end and the second end.

45.   The template pattern of claim 41, wherein the variable angle abruptly changes from zero to the chevron angle.

46. The template pattern of claim 41, wherein the chevron angle is equivalent to head skew at the first end.

47. The template pattern of claim 46, wherein the variable angle is constant relative to a radial line extending from the first end to the second end.

48. A template pattern for a reference surface of a disk connected with a hard disk drive having at least one head connected with a rotary actuator, comprising:

at least one servo wedge having a first end at an inner diameter of the disk and a second end at an outer diameter of the disk, each servo wedge including:

a plurality of pulses extending along a stroke from the first end to the second end;

a plurality of zag-bursts, each zag-burst forming a variable angle relative to the plurality of pulses; and

a plurality of zig-bursts, each zig-burst forming a negative chevron angle relative to the plurality of pulses; and

wherein the variable angle at the first end is zero and the variable angle at the second end is a chevron angle.

49. The template pattern of claim 48, wherein the plurality of pulses trace an arc from the first end to the second end such that the arc follows a motion of the head.

50.   The template pattern of claim 48, wherein each pulse can be continuous or discontinuous along the stroke.

51.   The template pattern of claim 48, wherein the variable angle increases continuously between the first end and the second end.

52.   The template pattern of claim 48, wherein the variable angle abruptly changes from zero to the chevron angle.

53.   The template pattern of claim 48, wherein the chevron angle is equivalent to head skew at the first end.

54.   The template pattern of claim 53, wherein the variable angle is constant relative to a radial line extending from the first end to the second end.